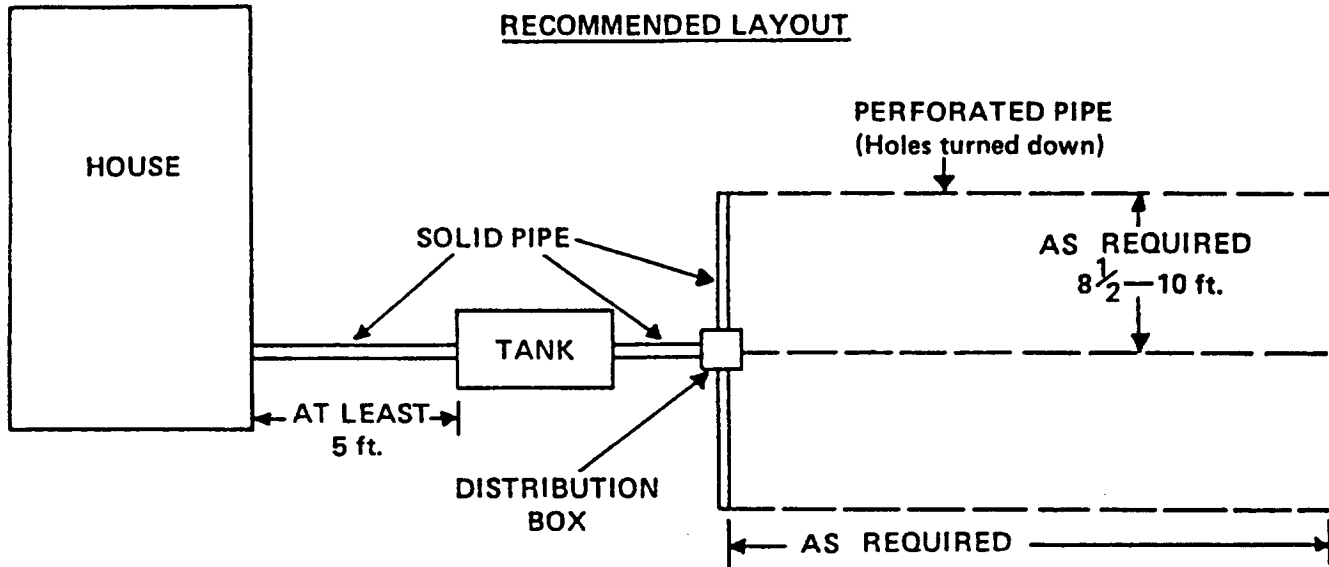
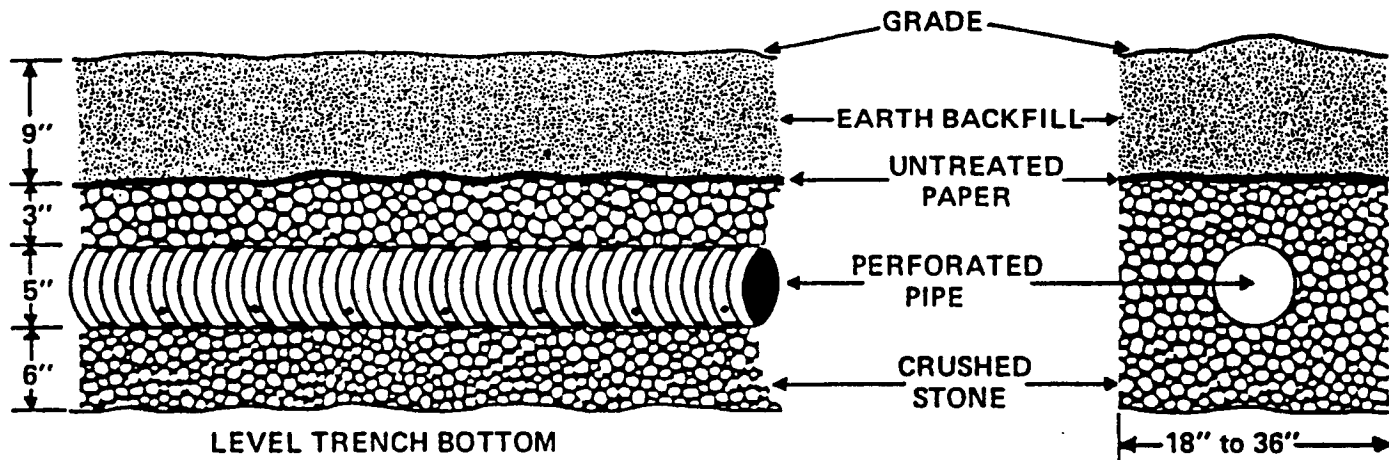


CONSTRUCTION DETAILS FOR INDIVIDUAL SEWAGE DISPOSAL SYSTEM

RECOMMENDED LAYOUT



ABSORPTION TRENCH DETAILS

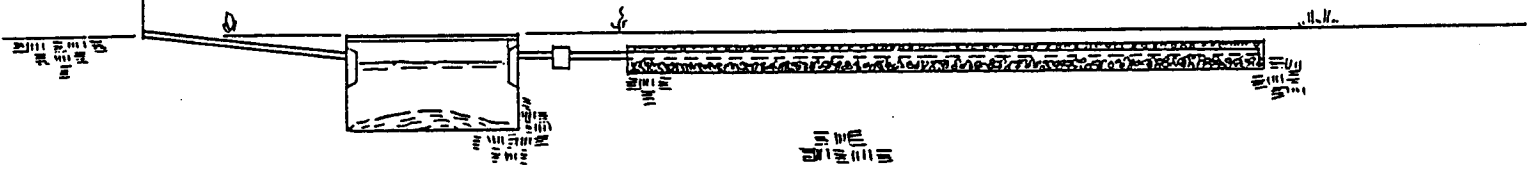


Individual Sewage Treatment and Disposal

Sewage Production

Initial Treatment
(Septic Tank)

Final Treatment In Soil
(Absorption Trenches)

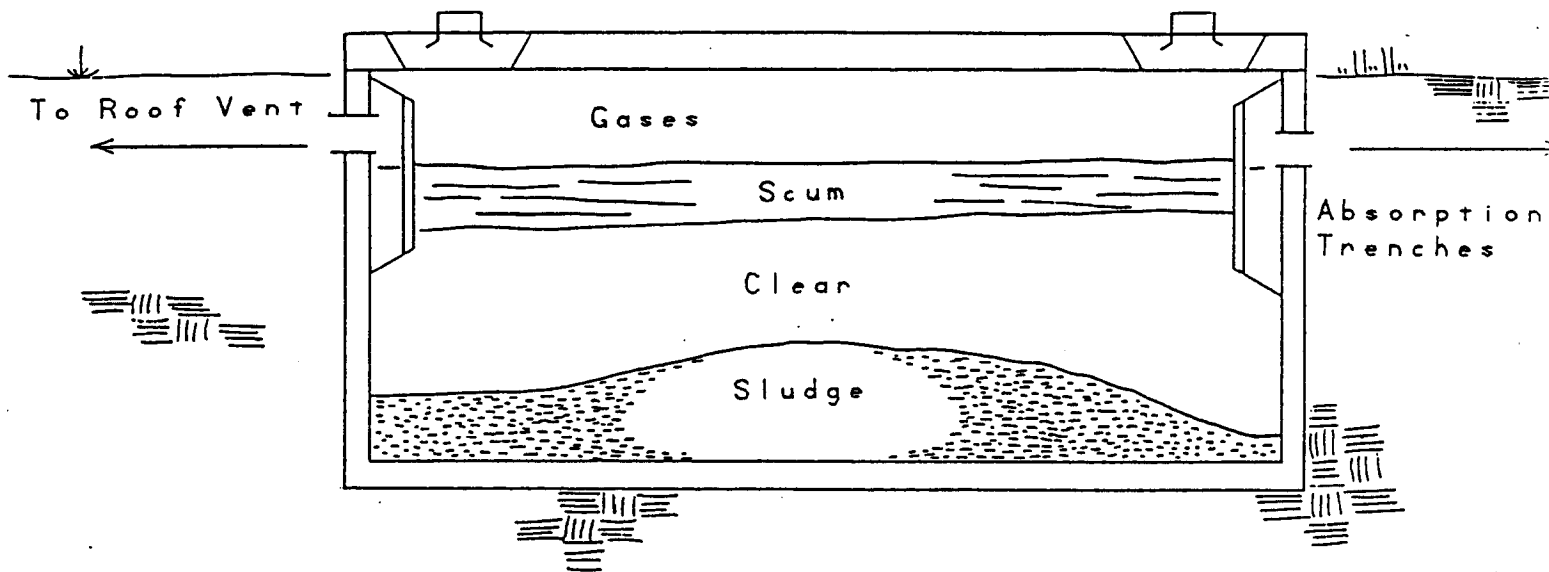


An individual sewage treatment and disposal (ISTD) system is a two-stage sewage treatment process:

1. **INITIAL TREATMENT** takes place in the septic tank. Solids settle to the tank bottom and grease floats to the top and solidifies. Clarified wastewater discharges to the absorption trenches.
2. **FINAL TREATMENT** takes place in the soil, where aerobic treatment, adsorption, and filtration complete the treatment process.

Initial Treatment

(Septic Tank)

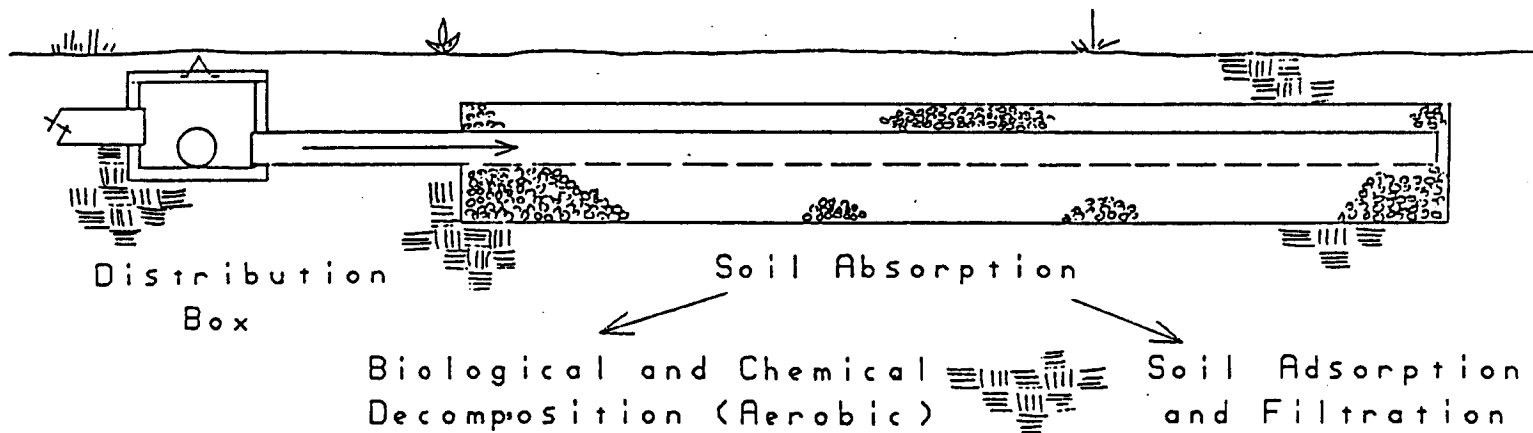


Biological Digestion (Anaerobic)

Initial treatment of sewage takes place in the septic tank. Solids settle to the bottom of the tank. Anaerobic bacteria digest much of this organic material to sludge. Noxious gases are vented through the house vent. Grease and oil rise to the top of the tank and solidify to scum. Sludge and scum must be periodically removed. Clarified liquid, still a polluted wastewater, is discharged to the absorption trenches. Pathogenic bacteria, viruses, and chemicals survive the initial treatment process and must receive final treatment in the soil.

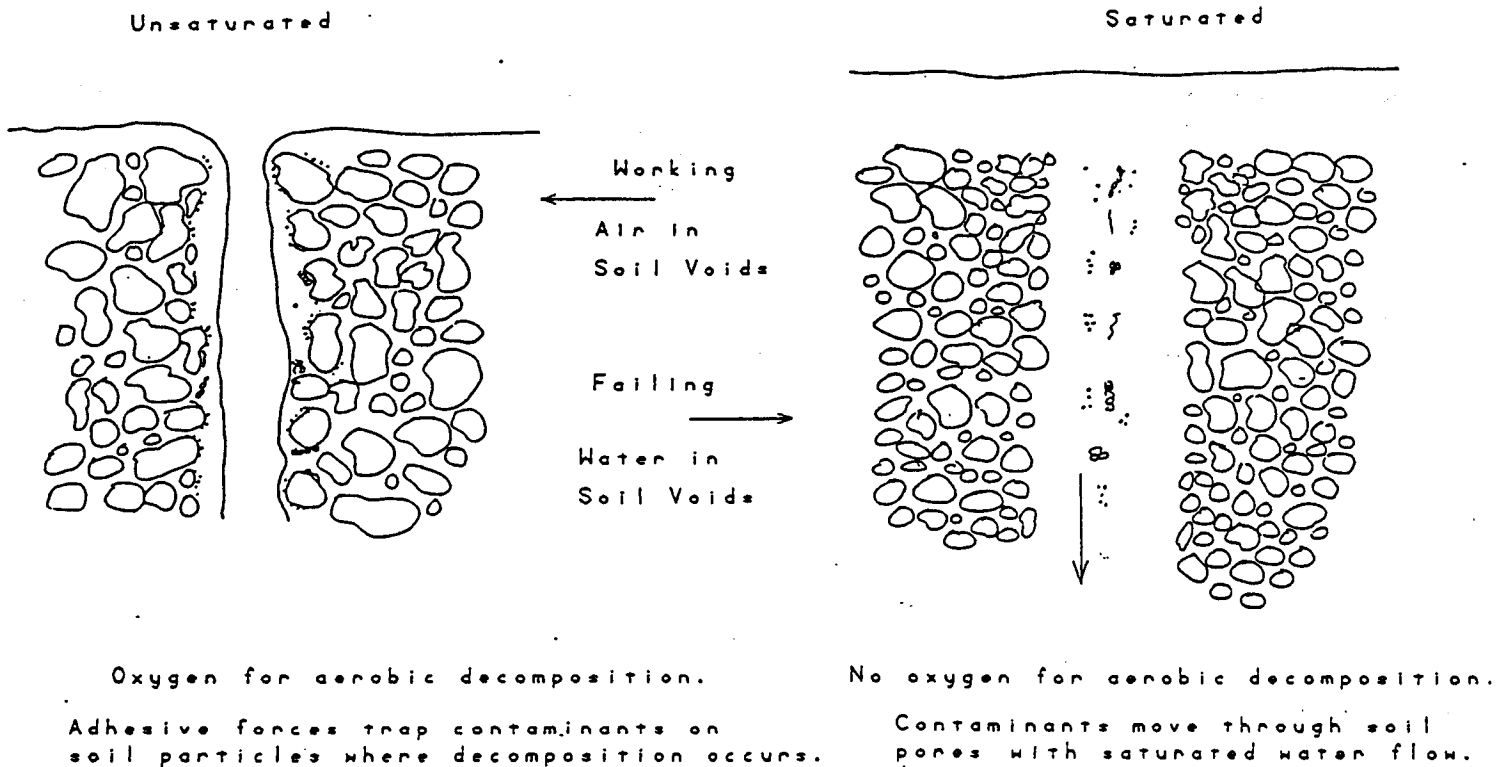
Final Treatment

(Absorption Trenches)



Final treatment takes place in the soil. Absorption trenches receive the clarified wastewater from the septic tank. The stone voids in the absorption trenches provide a reservoir to store the effluent while it is being absorbed into the soil. The soil provides the most critical and sensitive treatment process.

Sewage Treatment in Soil

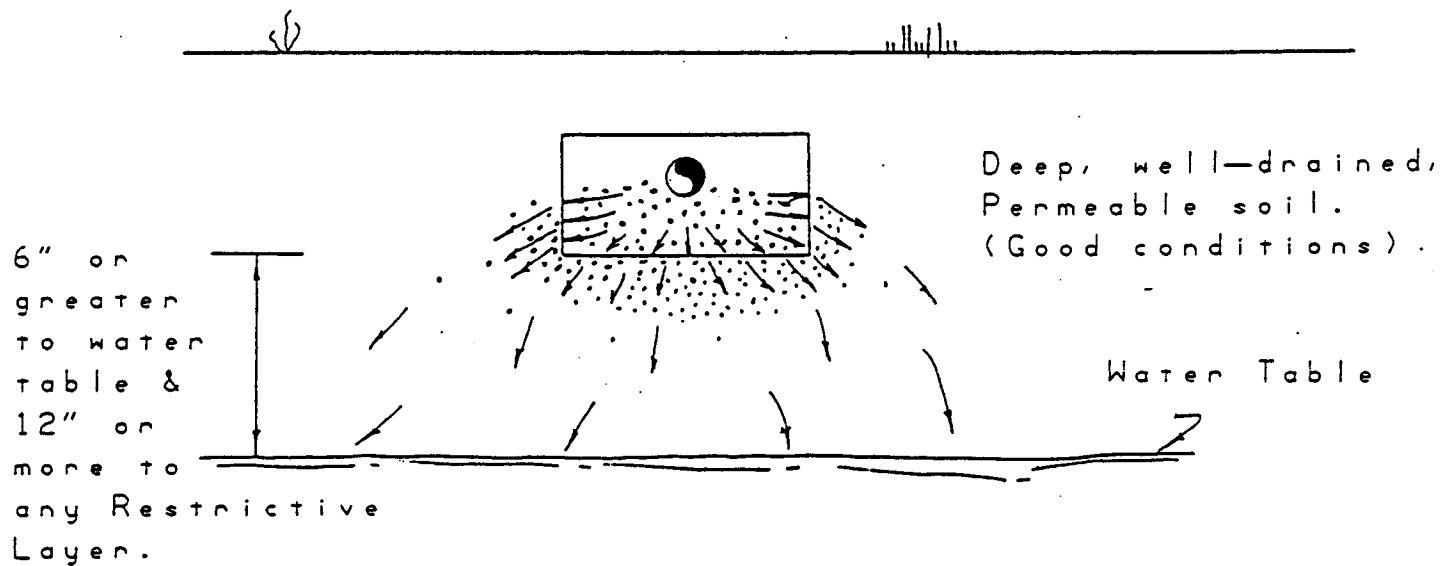


The ultimate treatment takes place in unsaturated soil. Absorption trenches must therefore be placed in well-drained, permeable soils. Sewage effluent in the absorption trenches is absorbed into the unsaturated soil where filtration, adsorption, and aerobic treatment occur. Suspended solid materials are filtered out by the soil. Most importantly, pathogenic bacteria and viruses are adsorbed, trapped by molecular forces, onto the soil particles. Aerobic treatment processes further digest any organic matter that escapes. Water percolates through the soil and eventually recharges the ground water.

All of these processes can be disrupted by saturated soil conditions in high water table soils. Pathogenic bacteria, viruses, and other pollutants can be carried by water great distances through the soil and contaminate drinking water supplies. Also, organic matter clogs the soil and prevents absorption, and sewage may discharge to the ground surface or back up into the building.

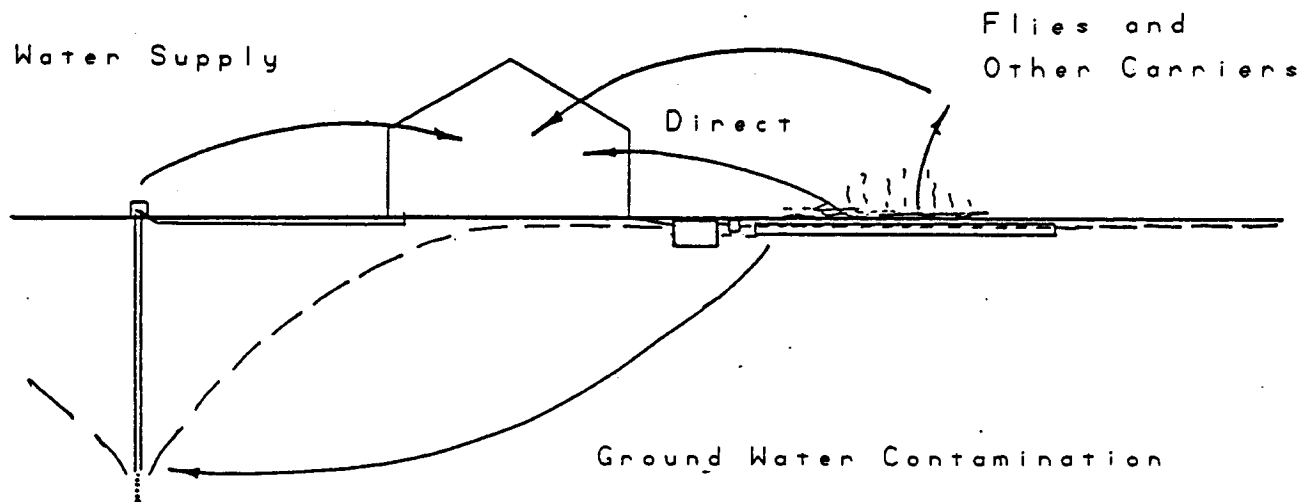
Normal Absorption

Trench Performance



Properly installed absorption trenches are very effective in treating sewage. Chemical and biological contaminants and pathogens are removed before the water recharges the ground water.

The Overall Picture



Avenues of Human Contact With Untreated Sewage

When individual sewage treatment and disposal systems fail, direct or indirect human contact with untreated sewage may result, creating opportunities for disease transmission.

Direct and indirect contact occurs when sewage:

1. Backs up into the building.
2. Discharges to the surface of the ground.
3. Contaminates drinking, surface, and ground water supplies.
4. Is carried by flies, mosquitoes, roaches, and other vectors which may contaminate food sources or transmit disease through direct contact with humans.
5. Contaminates areas accessible to children and pets.